PRELIMINARY DETERMINATION

To Grant a

Prevention of Significant Deterioration Permit

for

Public Service Company of New Hampshire

To construct a

50 MW Wood Fired Boiler (with Coal Burning Capability)

at

Schiller Station

in

Portsmouth, NH

Prepared by the
New Hampshire Department of Environmental Services
Air Resources Division

August 18, 2004

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I. Applicant's Name and Address

Public Service Company of New Hampshire
780 North Commercial Street
Manchester, NH 03101

Parent Company

Northeast Utilities
P.O. Box 270
Hartford, CT 06141-0270

II. Physical Address of the Proposed Facility

PSNH Schiller Station
400 Gosling Road
Portsmouth, NH 03801

County: Rockingham
USGS Map Coordinates: Longitude: 70° 47' 03" Latitude: 43° 05' 52"

III. Background

An existing major source of air pollution making a major modification in an attainment area is subject to review in accordance with the provisions of 40 CFR Section 52.21, *Prevention of Significant Deterioration* (PSD). The New Hampshire Department of Environmental Services, Air Resources Division (DES) administers the PSD program in New Hampshire. Under the New Hampshire PSD Operating Plan, DES is responsible for completing the Preliminary Determination and Draft Permit, as well as issuance of the PSD permit.

On January 30, 2004, Public Service Company of New Hampshire (PSNH) submitted an application for a PSD Permit to construct and operate a 50 MW Wood-Fired Boiler (with the capability of coal firing) at the Schiller Station in Portsmouth, NH.

New Hampshire has EPA approved procedures to ensure new construction or modifications of stationary sources do not violate control strategies or interfere with attainment of maintenance standards. These procedures authorize the DES to regulate non-significant increases for all criteria and regulated pollutants.

DES has final authority for the issuance of the PSD provisions of the permit. DES is authorized to administer the PSD program and as the PSD administrator is responsible for the following actions: 1) receiving PSD applications, 2) developing preliminary technical findings including air impact analysis and BACT limit findings, 3) drafting preliminary determinations and PSD permit and 4) providing public notice and opportunity for public comment on draft determinations and permits.

A PSD review involves the following six requirements: 1) demonstration of the application of Best Available Control Technology (BACT), 2) demonstration of compliance with each applicable emission limitation under the New Hampshire Code of Administrative Rules Env-A 100 et seq. and each applicable emissions standard and standard of performance under 40 CFR 60, 61, and 63, 3) air quality impact analysis, 4) Class I area impact analysis (where applicable), 5) projected growth analysis, and 6) analysis on the effects on soils, vegetation, and visibility.

This preliminary determination is provided as a statement of basis for the PSD Permit. This review demonstrates that all regulatory requirements will be met and includes a draft permit that establishes the enforceability of all applicable requirements.

IV. Project Description

PSNH is proposing to construct and operate a nominal 50 MW wood-fired boiler (referred to herein as the NWPP Boiler) with coal burning capability at Schiller Station in Portsmouth, NH. The NWPP Boiler will replace the existing Unit #5 50 MW coal-fired boiler at Schiller Station. The existing electrical generating equipment (turbine and generator) on Unit #5 will be utilized on the NWPP Boiler. Air pollution control at the facility will include a selective non-catalytic reduction (SNCR) system for NOx, limestone injection system to control acid gases, and a fabric filter for the control of particulate matter. PSNH will also operate continuous emission monitors (CEMs) to continuously record particulate matter, CO, NOx, opacity and certain operational parameters.

Ancillary projects associated with the NWPP Boiler will include the construction of a wood fuel storage yard and the installation of a new secondary coal crusher and conveyor system. The coal crusher will be located inside an enclosed structure in order to minimize fugitive dust emissions.

V. General Information

A. PSD Applicability Determination & Attainment Status

The proposed NWPP Boiler will be located in Rockingham County, which is classified as an attainment area for Carbon Monoxide (“CO”), Sulfur Dioxide (“SO_2"), Nitrogen Oxides (“NO_x”) and Particulate Matter (“PM”), including Particulate less than 10 microns in diameter (“PM-10"), and therefore, a PSD area for these pollutants.

Rockingham County is also classified as a non-attainment area for Ozone, and therefore, a non-attainment area for Ozone precursors, namely, NO_x and Volatile Organic Compounds ("VOCs"). In addition, the entire state is part of the Northeast Ozone Transport Region ("OTR") and is required to implement at a minimum ozone nonattainment NSR requirements equivalent to the moderate ozone nonattainment NSR requirements for all parts of the state.

The proposed NWPP Boiler will have emissions of regulated attainment pollutants in excess of major source PSD significant modification thresholds and therefore is subject to PSD review and will require a PSD Permit.

B. Site Information

The proposed NWPP Boiler will be located at the existing PSNH Schiller Station property, which is situated on a parcel of land within 1,000 feet of the Piscataqua River in Portsmouth, NH. The City of Portsmouth is located in Rockingham County in the seacoast region of New Hampshire. The site is located in the vicinity of several industrial and manufacturing facilities along the river and is a little more than 1 mile from the Pease International Tradeport. To the west just 2 miles beyond the Tradeport is an arm of the Great Bay while the City of Portsmouth is 2 miles to the southeast. The topography surrounding the project site is mostly flat, with lightly rising terrain to the west as well as across the river in Maine to the east. The only significant hills are to this direction and to the north, with elevations only up to 120 feet. The NWPP Boiler is to be located at an elevation of approximately 20 feet above mean sea level.

C. Operational Information

The proposed NWPP Boiler will provide approximately 50 MW of electricity to the regional electric transmission grid. PSNH has proposed operating the NWPP Boiler on a base-loaded basis, i.e. up to 100% of rated output for up to 24 hours per day, 365 days per year. The only periods of downtime are expected to be periods of maintenance and repair services.

Primary fuel for the facility will be wood fuel, including whole tree chips, untreated byproducts or residue from forest products manufacturing operations, stump grindings, or ground pallets. Backup fuel for the NWPP Boiler will be coal.

D. Quantification of Emissions

The NWPP Boiler project is classified as a major modification to an existing major source. In the application, PSNH has proposed the following maximum emissions (including emissions resulting from the operation of air pollution control equipment) from the NWPP Boiler:

Table 1
12-Month Rolling Emission Limitations for the NWPP Boiler

Pollutant	Maximum Emissions from NWPP Boiler (TPY)	Projected Emissions Change[1] (TPY)	PSD Threshold (TPY)	PSD Modification Significance Threshold (TPY)	Non-Attainment Threshold (TPY)
Nitrogen Oxides (NOx)	236.5	- 347.1	100	40	25
Carbon Monoxide (CO)	315.4	134.7	100	100	N/A
Volatile Organic Compounds (VOCs)	15.8	11.6	N/A	N/A	25
Total Particulate (PM)	31.5	-81.7	100	25	N/A
Particulate Matter Less than 10 Microns (PM-10)	31.5	-81.7	100	15	N/A
Sulfur Dioxide (SO_2)	333.8	-1616.7	100	40	N/A
Sulfuric Acid Mist (H_2SO_4)	20.5	-2.6	N/A	7	N/A
Ammonia (NH_3)	19.4	19.4	N/A	N/A	N/A
Lead	0.05	-0.37	100	0.6	N/A

The above emissions were estimated based upon the following assumptions:

1. The plant is operated at a load that would produce the worst-case emissions;
2. Annual emissions of all pollutants (except for SO_2) are based on a maximum of 8,760 hours per year of wood firing;
3. Annual SO_2 emissions are based on a maximum of 8,760 hours per year of coal firing; and
4. The BACT limitations identified in this Preliminary Determination.

1 The projected emissions change is the difference between the emissions from the NWPP Boiler and the existing Unit #5 at Schiller Station. This difference is compared to the PSD Significance Thresholds to determine what pollutants, if any, trigger the PSD significance levels. For the NWPP Boiler, CO is the only pollutant where the significance threshold (100 tons/year) would be exceeded.

The PSD review applies to every pollutant that the proposed boiler will emit in significant quantities, i.e., in amounts that will exceed the respective significant net emission rate. As seen in Table 1, the NWPP Boiler will be subject to PSD review for carbon monoxide. The applicant was required to perform a best available control technology (BACT) demonstration and an ambient air quality analysis. Each of these components of the PSD review process is discussed in detail in the following sections.

VI. Additional Regulatory Air Pollution Requirements

A. Federal NSPS Standards for Electric Utility Steam Generating Units

The proposed NWPP Boiler will be subject to the New Source Performance Standard ("NSPS"), 40 CFR 60 Subpart Da, *Standards of Performance for Electric Utility Steam Generating Units for Which Construction Is Commenced After September 18, 1978* ("Subpart Da"). Subpart Da affects electric steam generating units with a design capacity greater than 250 MMBTU/hr constructed after September 18, 1978. DES is delegated by EPA to enforce Subpart Da as it pertains to electric utility steam generating units.

Emission standards include PM not to exceed 0.03 lb/MMBTU, SO_2 not to exceed 1.20 lb/MMBTU, and NO_X not to exceed 0.60 lb/MMBTU or 1.6 pounds per megawatt-hour. Further, NO_X emissions are required to demonstrate a 65% reduction of the potential combustion concentration; however, 40 CFR 60.46a(b) allows compliance with the 0.60 lb/MMBTU standard to be used as a demonstration of compliance with the 65% reduction standard. Compliance with the NO_X standards is to be demonstrated on a 30-day rolling average. Finally, there is an opacity limit of 20% during any six-minute averaging period, except for one period per hour during which opacity may not exceed 27%. These standards apply at all times except during periods of startup, shutdown, and malfunction.

Compliance provisions and demonstration methods are described fully in §§60.46a and 60.48a. Note that both NO_X and SO_2 require averaging over a 30-day period. This can be accomplished using the CEMs installed for Title IV compliance. The particular case of 30-day averaging for SO_2 is further clarified in §60.48a(c), where reliance on Reference Method 19 is allowed.

Continuous emission monitoring systems are required for PM, opacity, SO_2, NOx, and oxygen (or carbon dioxide) per §60.47a(c) and (d).

B. Federal NSPS Standards for Coal Preparation Plants

The New Source Performance Standards (NSPS) for Coal Preparation Plants, 40 CFR

60 Subpart Y ("Subpart Y") are applicable to the NWPP coal preparation facilities because the NWPP is proposed to process more than 200 tons per day. The secondary coal crusher is proposed to process 700,000 lb/hr or 8,400 tons/day. This NSPS is also applicable because the facility will be constructed after the applicable date of October 24, 1974. This NSPS is applicable to the coal processing and conveying systems, coal storage systems, and coal transfer and loading systems. This NSPS will be applicable to the secondary coal crusher, screens, conveyor belts, any storage facility except open storage piles, and any coal transfer system.

Subpart Y requires an initial compliance test for opacity of coal dust emissions from the crusher. DES is delegated by EPA to enforce Subpart Y as it pertains to coal preparation plants.

C. Federal Acid Rain Program

In accordance with 40 CFR Part 72, *Federal Acid Rain Requirements*, the NWPP Boiler shall continue to be a Phase I Affected Unit. PSNH received a Phase II Acid Rain Permit on December 31, 1997.

PSNH is required to acquire SO_2 allowances in the amount of one allowance for each ton of SO_2 emitted in accordance with 40 CFR Part 72. In addition, PSNH will be required to install continuous emission monitoring (CEM) systems that meet the applicable requirements of 40 CFR Part 75. The monitoring plan for the CEM system will have to be updated when the NWPP Boiler commences operation.

D. Federal Accidental Release Requirements - Clean Air Act Section 112(r)

PSNH has identified that the facility will not be subject to the provisions of 40 CFR Part 68 for the Federal Accidental Release Program. PSNH is not planning on storing any regulated substances in quantities above the applicability threshold of 40 CFR 68.

E. Maximum Achievable Control Technology (MACT) Requirements for New Sources - Clean Air Act Section 112(g)

The Clean Air Act Amendments of 1990 require the United States Environmental Protection Agency (EPA) to regulate large facilities that emit one or more of the 188 listed hazardous air pollutants (HAPs). EPA published a list of industrial source categories that emit one or more of these HAPs on July 16, 1992, for which the agency was required to develop standards requiring application of stringent controls, known as maximum achievable control technology (MACT). Newly constructed units at existing facilities are subject to 112(g) requirements if they have the potential to emit major[2] amounts of HAPs. Sources subject to 112(g) must submit a case-by-case MACT determination to the permitting authority for review in accordance with the provisions of 40 CFR Section 63.53, *National Emission Standards for Hazardous Air Pollutants for Source Categories* (NESHAP). The New Hampshire Department of Environmental Services, Air Resources Division (DES), administers the NESHAP program in New Hampshire. DES is responsible for carrying out the case-by-case MACT determination review, as well as issuance of any MACT Approval.

The application for a Temporary Permit included a case-by-case MACT determination as required by 40 CFR part 63.42(c) and 63.43(c)(i), and the New Hampshire Code of Administrative Rules Env-A 607.01(aa), and Env-A 607.03(e).

MACT for a newly constructed device is the emission limitation which (1) is not less stringent that the emission limitation achieved in practice by the best controlled similar source, and (2) which reflects the maximum degree of reduction in emissions that the permitting authority, taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements, determines is achievable by the constructed or reconstructed major source.

PSNH Schiller Station is classified as a major stationary source of Hazardous Air Pollutants ("HAPs"), as HAP emissions are expected to exceed 25 tons per year, above the applicability threshold (10 tons of any single HAP or 25 tons of all HAPs combined) of Section 112(g). Since the facility is a major HAP source, and because no specific MACT standard currently exists for electric utility steam generating units, the NWPP Boiler is subject to a case-by-case MACT determination under Section 112(g) of the Clean Air Act.

PSNH has proposed the following limitations in their case-by-case MACT determination:

Table 2
Summary of Proposed MACT Limitations for the NWPP Boiler

Pollutant/Parameter	Emission Limit or Monitoring/Testing Requirement
Particulate Matter (PM) Emissions[3]	0.025 lb/MMBTU
Opacity	10% (1-hour averaging period)

2 Major sources are those facilities with the potential to emit 10 tons per year (tpy) of any on hazardous air pollutant or 25 tpy of a combination of HAPs. Section 112(b) of the Clean Air Act Amendments contains the list of HAPs.

3 The MACT Standard gives sources the option to meet either a particulate matter standard <u>or</u> an emission standard for total selected metals. PSNH chose the option of meeting the particulate matter standard

Pollutant/Parameter	Emission Limit or Monitoring/Testing Requirement
Hydrogen Chloride (HCl) Emissions	0.02 lb/MMBTU
Mercury (Hg) Emissions	0.000003 lb/MMBTU
Carbon Monoxide (CO) Emissions	400 ppm @ 7% oxygen (O_2)
Emissions Monitoring	Must install Continuous Emissions Monitors (CEMS) for CO and % O_2. Must install and operate Continuous Opacity Monitors (COMS) to demonstrate ongoing compliance with the opacity standards. Must monitor sorbent (limestone) injection rate to demonstrate compliance with the HCl emission rate.
Performance and Initial Compliance Tests	Initial performance testing required for PM, HCl, Hg, and opacity. Annual testing required thereafter. PSNH will be required to test any new fuel (fuel that has a different composition from that used during performance testing) for mercury, and HCl prior to using that fuel.
Required Plans	PSNH must develop the following site-specific plans: • Monitoring plan • Startup, shutdown, and malfunction plan • Performance test plan (submitted 60 days before testing) • Fuel analysis plan • Emissions average implementation plan • Continuous monitoring systems (CMS) performance evaluation test plan

It should be noted that EPA is expected to promulgate a MACT standard for Industrial, Institutional, Commercial Boilers and Process Heaters (40 CFR 63 Subpart DDDDD). This standard is expected to be published in the Federal Register by the end of August 2004, and will become effective within 30 days of publication. This MACT covers boilers of any size that burns biomass (wood).

F. State Standards

DES has a number of air pollution regulations that would be applicable to the NWPP Boiler. These applicable regulations are adopted under authority of RSA 125-C, 125-I and 125-J and are codified in the New Hampshire Rules Governing the Control of Air Pollution. The substantive portions of these state requirements include, but are not limited to, the sections listed below:

1. Chapter Env-A 200 - *Procedural Requirements*.
2. Chapter Env-A 300 – *Ambient Air Quality Standards*
3. Chapter Env-A 400 – *Acid Deposition Control Program*
4. Chapter Env-A 500 – *Standards Applicable to Certain New or Modified Facilities and Sources of Hazardous Air Pollutants*
5. Chapter Env-A 600 - *Statewide Permit System*
6. Part Env-A 622 - *Additional Requirements in Non-Attainment Areas and the New Hampshire Portion of the Northeast Ozone Transport Region*
7. Chapter Env-A 700 - *Permit Fee System*
8. Chapter Env-A 800 - *Testing and Monitoring Procedures*
9. Chapter Env-A 900 - *Recordkeeping and Reporting Requirements*
10. Part Env-A 1002 – *Fugitive Dust*
11. Part Env-A 1211 – *Nitrogen Oxides (NOx)*
12. Chapter Env-A 1400 - *Toxic Air Pollutants Standards*
13. Chapter Env-A 1600 – *Fuel Specifications*
14. Chapter Env-A 1700 – *Permit Application Forms*
15. Chapter Env-A 2000 – *Fuel Burning Devices*
16. Chapter Env-A 3200 – *NOx Budget Trading Program*

VII. PSD Control Technology Review

Pursuant to 40 CFR 51.166, 40 CFR 52.21, and Env-A 619, the proposed NWPP Boiler is subject to Best Available Control Technology ("BACT") for carbon monoxide (CO). Both State and Federal regulations and policies define BACT as an emission limitation based on the maximum degree of reduction for each regulated pollutant, taking into consideration technical, economic and environmental factors. In no case shall the BACT emission limitation result in emissions of any pollutant in excess of any applicable standard under 40 CFR Part 60, *Standards of Performance for New Stationary Sources of Air Pollution* and 40 CFR Part 61, *National Emission Standards for Hazardous Air Pollutants*.

In its application, PSNH conducted their "top down" BACT analysis by first identifying all possible control options, which included a search of the EPA RACT/BACT/LAER Clearinghouse ("RBLC"), the BACT Clearinghouse managed by the California Air Resources Board (CARB), a review of various state and local air permitting agencies and other operating facilities, and conversations with air pollution control equipment manufacturers and vendors. Secondly, PSNH took into consideration other technical and environmental impacts of a particular control option. Finally, PSNH made a proposal of BACT for CO by taking into consideration the factors above.

In conducting the Preliminary Determination for BACT, DES went through a similar process for proposing BACT, including identifying all control technologies for CO, eliminating any technically infeasible options, ranking the control technologies/emission limitations according to most stringent, and selecting BACT.

A. Control Techniques and Technical Feasibility for Carbon Monoxide (CO)

PSNH identified two types of CO control techniques for the NWPP boiler: 1) combustion controls; and 2) an oxidation catalyst.

1. Combustion Controls

CO is formed as a result of incomplete combustion. The boiler design, the air distribution, air/fuel mix, combustion temperature, fuel type, turbulence, and residence time affect the control of CO. To minimize CO emissions, the impact on NOx emissions must be taken into consideration. Higher combustion temperatures, increased residence time and more excess air result in lower CO emissions. In contrast, increased temperatures exponentially increase NOx emission formation, and increased residence time linearly increases NOx formation. A balance of the combustion conditions must be achieved to minimize NOx and CO emissions.

PSNH proposes the boiler design and various good combustion practices and controls and operational techniques, such as controlling wood moisture content, wood particle size, combustion temperature, and fuel/air input, to minimize CO emissions. The fluidized bed combustion technology uses a heated bed of sand-like material suspended (fluidized) within a rising column of air to burn solid fuel. The CFB technique increases combustion efficiency through the scrubbing action of the bed material upon the fuel particle, which strips away the carbon dioxide and char layers that normally form around the fuel particle. The oxygen reaches the fuel more effectively and increases the rate and efficiency of the combustion process.

The boiler design also allows the fuel to pass through the combustion chamber several times before leaving the boiler as ash. The CFB is equipped with solids recycle cyclones that repeatedly capture fuel and ash to recycle them through the furnace.

PSNH proposes to impose wood moisture content limitations on the wood to ensure that excessive moisture will not interfere with combustion. In addition, PSNH proposes a wood particle size range for optimal combustion, based on CFB experience. PSNH proposes an upper and lower wood size range to prevent wood from being too large to be properly fluidized and combusted and too fine to allow for sufficient retention time in the furnace for combustion.

According to PSNH, the National Fire Protection Association (NFPA) establishes combustion temperature limitations, primarily for operator safety, but also to ensure proper combustion in a timely fashion. The combustion temperatures are set for the lowest permissible combustion temperature of wood (and coal). PSNH will monitor a series of combustion temperature points throughout the furnace and cyclones. These temperatures will be tied to the master boiler controller to assure proper temperatures are maintained for combustion either automatically or manually.

Additional control systems to ensure proper and complete fuel combustion is a fuel-to-combustion air programmed sequence that modulates the wood input to the boiler furnace based upon the amount of combustion air entering the furnace. This prevents too much fuel being fed into the furnace with insufficient air for proper combustion. The continuous emissions monitoring system is also tied into the fuel/combustion air feed systems to properly control the fuel/air input and to adjust the fuel-to-air ratio if needed to ensure proper combustion.

2. Oxidation Catalyst

An oxidation catalyst lowers the activation energy necessary for CO to react with oxygen and produce CO_2. According to PSNH, oxidation catalysts operate optimally in a temperature range of 700 to 1100 °F. Most catalytic oxidizers have been used at gas-fired combustion devices, such as gas turbines, whose exhaust gases are cleaner than wood or coal. An oxidation catalyst system on a wood-fired/coal-fired boiler may cause potential operational and maintenance problems. Plugging and fouling of the catalyst may occur as a result of the high particulate loading and the make-up of the exhaust gas. In addition, the optimal temperature for exhaust gas may not be conducive to the best operation and maintenance of the catalyst oxidation system.

The typical temperature operating range for the fluidized bed boiler is 1500 to 1600°F. In order to avoid plugging of the catalyst by the PM from the coal or wood, the oxidation catalyst system would need to be placed after any PM controls. PSNH has proposed a fabric filter for PM control. After the PM controls, the exhaust gas stream is estimated to be about 317°F. Thus, in order to place the oxidation system at the optimal temperature, it would need to be placed prior to the PM controls. According to one vendor consulted by PSNH, catalyst blocks with larger pores could potentially prevent plugging; however, the amount of catalyst needed would increase significantly. In addition, other maintenance and operational problems may arise.

The control equipment vendors consulted also said that the exhaust gas composition contains catalyst deactivators, which would foul the catalyst. The contaminants in the stream would cause the catalyst to fail prematurely. Most vendors consulted would not provide a warranty on the catalyst oxidation system for fluidized bed boilers fired by wood or coal. One vendor indicated that CO control may be possible, but at a significant cost.

The Ohio Environmental Protection Agency issued a draft permit in 2002 for a biomass-fired stoker boiler with an oxidation catalyst system. The emission rate for the boilers was equivalent to 0.011 lb CO/MMBtu. At the time, the system was considered to be BACT. The boilers never became operational. On March 29, 2004, the Ohio EPA reissued a draft permit for the biomass-fired stoker boilers rated at 318 MMBtu/hr with the oxidation catalyst system. The proposed emission rate for the boilers is 2.74 lb/hr based upon an hourly average (or approximately the equivalent of 0.0086 lb/MMBtu, which is based upon a rate of 0.2 lb/MMBtu and a 95.7 percent control efficiency) and 12 tons per year based upon a 12-month rolling average.

BioEnergy, a wood-fired boiler in NH, installed an oxidation catalyst system for PSD avoidance purposes. This 225 MMBtu/hr boiler is limited to 225 lbs of CO/hr averaged on a calendar day basis (equivalent to 1 lb/MMBtu). BioEnergy has experienced problems with the catalyst system, including premature replacement of the catalyst.

Because the boilers in Ohio with the proposed oxidation catalyst system have not commenced operation, and the boilers in NH have experienced many operational and maintenance problems with a catalyst oxidation system, DES concludes that an oxidation system is not technically feasible on a wood or coal-fired fluidized bed boiler. In addition, the operating and maintenance costs would be excessive.

B. Control Technique Ranking

With the elimination of any potential add-on controls (i.e., oxidation catalyst systems), the best alternative for the control of CO is through the boiler design and combustion practices and controls. To determine the best emission limit achieved in practice that is appropriate for the NWPP, DES ranked the lowest limits found in the RBLC, California (CARB) databases, and other state air pollution control agency websites. Table 3 ranks the emission limits for wood-fired boilers, and Table 4 ranks the emission limits for coal-fired boilers.

For wood-fired boilers, the CO emission limits were as low as the equivalent of 0.10 lb/MMBtu for a consecutive 24-hour average for a fluidized boiler permitted in 1988. This limit is not applicable during cold starts (i.e., when the boiler bed is less than 700°F), but appears to be applicable at all other times. This 216 MMBtu/hr boiler was also limited to 31.44 lb/hr or the equivalent of 0.15 lb/MMBtu. The hourly limit is not applicable during cold and hot starts; instead, the CO emissions cannot exceed 60 lb/hr (or the equivalent of 0.28 lb/MMBtu). Another fluidized bed boiler has a CO limit of 183 ppmvd @ 3% O_2 (or the equivalent of 0.13 lb/MMBtu).

Consequently, without the use of add-on controls, the lowest CO emission rate for wood is 0.10 lb/MMBtu based on a 24-hour average.

For coal-fired boilers, the CO emission limits were as low as the equivalent of 0.022 lb/MMBtu for a pulverized coal boiler rated at 238 MMBtu/hr. Because it is not technically feasible to require add-on controls for the reduction of CO on the CFB boiler, DES only evaluated CO emission limits at other CFB boilers. As shown in the table, the lowest emission rate is 0.10 lb/MMBtu. The averaging times for CO emission limitations for coal boilers varies by permit. Most of the permits did not specify the load where the emission limit is applicable; therefore, the limits must be applicable at all times. Some permits do not list the averaging time, while others list a 1-hour average, a 3-hour average, an 8-hour average, and a 24-hour average. For the averaging time representing the most attainable limit, DES reviewed boilers comparable in size to the NWPP. Two boilers are approximately the same size, one at 600 MMBtu/hr at the Scrubgrass Power Corporation and one at 650 MMBtu/hr at the Manitowoc Public Utilities. Scrubgrass Power Corporation did not specify an averaging time, while Manitowoc Public Utilities specifies an averaging time of 24 hours. Based on this analysis, the most technically feasible averaging time for a boiler of NWPP's size was determined to be 24-hour.

Consequently, without the use of add-on controls, the lowest CO emission rate for coal is 0.10 lb/MMBtu based upon a 24-hour average at all loads.

Table 3
Summary of CO Emission Limitations at Wood-Fired Boilers

Company & Facility Name	Permit Date	Boiler Type	Boiler Size (MMBtu/ hr)	Fuel	CO Emission Rate, Averaging Time, Load	CO Control Technique	Ref.	Comments
Soledad Energy Ltd., Partnership (Monterey Bay Unified APCD)	9/30/1988	Fluidized Bed Combustor	216	Wood waste (chipped-trees, landfill debris)	31.44 lb/hr (~0.15 lb/MMBtu); 502.17 lb/day based on 24 consecutive hours (~0.10 lb/MMBtu); limits do not apply during cold start (bed <700EF) cannot exceed 60 lb/hr (~0.28 lb/MMBtu); during hot start (bed > 700EF) cannot exceed 60 lb/hr and 502.17 lb/day	combustion practices/ controls	CARB; permit	
Delano Energy Company (SJVUAPCD)	9/21/1992	Fluidized Bed Combustor	315	Wood-Biomass	183 ppmvd @3% excess O2 (~0.13 lb/MMBtu)	combustion practices/ controls	SJVUAPCD	

Table 4
Summary of CO Emissions Limitations at Coal-Fired Boilers

Company & Facility Name	Permit Date	Boiler Type	Boiler Size (MMBtu/ hr)	Fuel	CO Emission Rate, Averaging Time, Load	CO Control Technique	Ref.	Comments
Miller Brewing Company –Trenton (OH)	11/15/2001	Pulverized coal	238	Coal	5.2 lb/hr (equivalent to 0.022 lb/MMBtu); no averaging time or load specified	combustion practices/ controls	RBLC; permit	BACT
Tampa Electric Company TECO-Big Bend Station (FL)	1/1/2001	Dry Bottom-Tangentially-Fired	4330	Coal	0.029 lb/MMBtu and 124 lb/hr (equivalent to 0.029 lb/MMBtu); averaging time is what is specified in the EPA test method	combustion practices/ controls	RBLC; permit	BACT
Reliant Energy, Inc, W.A. Parish Electric Generating Station (TX)	12/21/2000	NA	6700	Coal	0.050 lb/MMBtu	combustion practices/ controls	RBLC	BACT
Archer Daniels Midland Company (IL)	2/25/2002	Circulating Fluidized Bed (Boilers Nos. 9 and 10)	1500 each	Coal and no more than 20% by weight of tires, tire derived fuel, MSW, and clean wood	0.10 lb/MMBtu on an hourly basis; 150 lb/hr on a 3-hour average (equivalent to 0.10 lb/MMBtu); 657 tpy on a 3-hour average (equivalent to 0.10 lb/MMBtu)	combustion practices/ controls	RBLC; permit	BACT

Table 4 (continued)
Summary of CO Emissions Limitations at Coal-Fired Boilers

Company & Facility Name	Permit Date	Boiler Type	Boiler Size (MMBtu/hr)	Fuel	CO Emission Rate, Averaging Time, Load	CO Control Technique	Ref.	Comments
Scrubgrass Power Corp (PA)	1/18/1989	Fluidized Bed Combustor	600	Unit No. 1 -waste coal Unit No. 2-coal	0.1 lb/MMBtu; 60 lb/hr (equivalent to 0.1 lb/MMBtu); 223 tpy (equivalent to 0.085 lb/MMBtu) (no averaging times listed)	combustion practices/ controls	RBLC; permit	
AES Puerto Rico	10/29/2001	Fluidized Bed Combustor	4922.7 (combined for 2)	Coal	0.10 lb/MMBtu on an 8-hour average, 94 ppmdv @7% O_2, or 246.1 lb/hr (equivalent to 0.05 lb/MMBtu), whichever is more stringent	combustion practices/ controls	RBLC; permit	BACT
Energy New Bedford Cogeneration Facility (MA)	4/30/1993	Fluidized Bed Combustor	1671	Coal	0.13lb/MMBtu for 70-100% load; 0.15 lb/MMBtu for 60-69% load; 0.20 lb/MMBtu for 50-59% load; 0.27 lb/MMBtu for 40-49% load; and 228.1 lb/hr (equivalent to 0.14 lb/MMBtu) at any load	combustion practices/ controls	RBLC; permit	This facility has not been built yet, although the original permit was issued in 1993.

Table 4 (continued)
Summary of CO Emissions Limitations at Coal-Fired Boilers

Company & Facility Name	Permit Date	Boiler Type	Boiler Size (MMBtu/ hr)	Fuel	CO Emission Rate, Averaging Time, Load	CO Control Technique	Ref.	Comments
JEA Northside Generating Station (FL)	5/13/99	Circulating Fluidized Bed	2764	Coal	350 lb/hr based on 24 hr avg (equivalent to 0.13 lb/MMBtu)	combustion practices/ controls	FL website; permit	
Manitowoc Public Utilities (WI)	12/2/2003	Circulating Fluidized Bed	650	Coke, coal, paper pellets	0.15 lb/MMBtu based on 24-hr avg.	combustion practices	WI website, permit	BACT

C. Summary Table of Proposed Carbon Monoxide BACT Limitations

Table 5 below provides a summary of proposed BACT limitations for carbon monoxide:

Table 5
BACT Emission Limitations and Control Technology for Carbon Monoxide

Fuel Type	Carbon Monoxide Emission Limitation, Load, and Averaging Time	Control Technology for BACT
Wood	0.10 lb/MMBtu 50% load or greater 24-hour block average	Boiler Design Good Combustion Practices
	72 lb/hr All loads 24-hour block average	
	315.4 tons per year All loads 12-month rolling average	
Coal	0.10 lb/MMBtu 50 % load or greater 24-hour block average	Boiler Design Good Combustion Practices
	63.5 lb/hr All loads 24-hour block average	
	315.4 tons per year All loads 12-month rolling average	

VIII. Air Quality Impact Analysis

A. Modeling Overview

An ambient air quality impact analysis was performed to assess predicted air quality concentrations from the proposed NWPP Boiler at Schiller Station against applicable state and federal standards and guidelines. Standard modeling procedures were followed in the evaluation, using EPA-approved models and methodologies. First, screening modeling was performed in all three terrain regimes (simple, intermediate, and complex) to determine the worst-case operating load condition - loads of 50%, 75%, and 100% were analyzed. Refined modeling, incorporating impacts from additional sources in the area, was then performed using the worst-case load condition, which was 100% load for the proposed NWPP Boiler. The proposed NWPP Boiler was shown not to cause or contribute to violations of National Ambient Air Quality Standards (NAAQS) or PSD increments.

Other analyses as required by state and federal regulations were also done, including evaluation of Class I area impacts, a toxic air pollutant impact assessment, and additional PSD analyses. All dispersion modeling was performed assuming 8,760 hours per year on the fuel that will yield the worst-case emission rates (wood fuel for PM10, NOx, and CO, coal for SO_2).

B. Model Input Data

EPA's SCREEN3 model (version 96043) was used to perform the load case screening analysis described above. Refined modeling for all terrain regimes was performed using the EPA AERMOD dispersion model, version 02222. Because the latest version of AERMOD also incorporates the PRIME algorithms for building downwash, impacts in the building downwash regions (including cavity impacts) were assessed with the refined modeling analysis. The model was run with regulatory defaults for over 4,300 receptors located in both the nearfield, to address downwash and local impacts, and at distances further downwind. The receptor grid extended across the border into Maine and also included specific sensitive receptor locations, namely on the Piscataqua River Bridge which connects Maine and New Hampshire. All modeling was performed in accordance with all applicable DES and EPA guidelines and policies.

The model was run using refined, sequential meteorological data from the nearby meteorological tower at Pease International Tradeport in Newington, which is located within 2 miles of the proposed site. Given the proximity of PSNH Schiller Station to the meteorological monitoring station and the generally flat terrain in the surrounding area, the Pease data were considered representative of conditions at the proposed site. The data set consists of 5 years of hourly meteorological data collected at a height of 13 feet at the former New Hampshire Air National Guard facility during the period 1990-1994. The upper air data were taken from the nearest National Weather Service upper air station at Portland, Maine for the same time period.

The emission rates and stack parameters used in the modeling for the proposed NWPP Boiler are provided in Table 6. Since the proposed NWPP Boiler stack is below GEP (Good Engineering Practice) height (as are the stacks for many of other emissions sources included in the modeling), the modeling analysis also assessed the potential for building downwash wake effects. EPA's BPIP-PRIME program was used in the determination of GEP stack height and direction-specific building dimensions.

Table 6
NWPP Boiler Emissions and Stack Parameters

Modeling Parameter	Value	Units
Plant Load	100	percent load
Stack Height	226	feet above ground level
Stack Diameter	10.5	feet
Stack Base Elevation	26	feet above mean sea level
Exhaust Exit Temperature	431	^oK
Ambient Air Temperature	68	^oF
Exhaust Gas Velocity	16.15	m/sec
NOx Emission Rate[1]	6.80	g/sec

Modeling Parameter	Value	Units
CO Emission Rate[1]	9.07	g/sec
PM10 Emission Rate[1]	0.91	g/sec
SO_2 Emission Rate[2]	9.60	g/sec

Notes on Table 6:
1 – Maximum emission rate occurs during wood firing at 100% load.
2 – Maximum emission rate occurs during coal firing at 100% load.

The background air quality data that was used in the analysis is shown in Table 7 in micrograms per cubic meter ($\mu g/m^3$). These values were taken from Portsmouth for the years 2000-2002, and were approved by DES at the time of the original application submittal. The Portsmouth monitoring site was determined to be representative of the air quality in the project area due to its proximity (within 3 miles of the proposed site).

The applicable air quality criteria are presented in Table 8. Based on the EPA recommended procedures, if the maximum predicted impacts for any pollutant are found to be below the SILs (Significant Impact Levels), then it is assumed that the proposed facility will not cause or contribute to a violation of the PSD pollutant increments or the NAAQS. Therefore, no further modeling would be required for that pollutant.

Table 7
Background Air Quality Data Used in the Modeling Analysis

Pollutant	Averaging Period	Background Concentration ($\mu g/m^3$)
SO_2	Annual	10
	24-Hour	47
	3-Hour	152
PM10	Annual	17
	24-Hour	37
NO_2	Annual	32
CO	8-Hour	2,300
	1-Hour	2,300

Table 8
Significant Impact Levels (SILs), PSD Class II Increments, and NAAQS

Pollutant	**Averaging Period**	**Significant Impact Level ($\mu g/m^3$)**	PSD Class II Increment **($\mu g/m^3$)**	NAAQS ($\mu g/m^3$)
SO_2	Annual	1	20	80
	24-Hour	5	91	365
	3-Hour	25	512	1,300
PM10	Annual	1	17	50
	24-Hour	5	30	150
NO_2	Annual	1	25	100
CO	8-Hour	500	NA	10,000
	1-Hour	2,000	NA	40,000

C. Single-Source Criteria Pollutant Impact Analysis

Using the input parameters and modeling procedures described above, the dispersion modeling analysis predicted significant impacts for SO_2 for the 3-hour, 24-hour, and annual averaging periods; and for NO_2 for the annual averaging period (see Table 7 below). Table 9 presents the proposed NWPP Boiler's impacts in comparison to the SILs, and Table 10 presents the proposed NWPP Boiler's impacts against the PSD Increments and NAAQS. The results in these two tables reflect the maximum concentrations predicted for the proposed NWPP Boiler for the load screening analysis (as described earlier, 100% load was found to be worst-case). The impacts for the proposed NWPP Boiler alone are predicted to be in compliance with all Class II increments and NAAQS (note that impacts without background are evaluated against increments; impacts plus background are evaluated against NAAQS).

Table 9
Single-Source (Proposed NWPP Boiler) Maximum Impacts
Compared to Significant Impact Levels

Pollutant	Averaging Period	Maximum Modeled Concentration ($\mu g/m^3$)	Significant Impact Level ($\mu g/m^3$)
SO_2	Annual	7.4	1
	24-Hour	29.6	5
	3-Hour	66.5	25
PM10	Annual	0.7	1
	24-Hour	2.8	5
NO_2	Annual	3.9	1

Note:
The NO_2 impact reflects a 75% NOx to NO_2 conversion.

Table 10
Single-Source (Proposed NWPP Boiler) Maximum Impacts
Compared to Increments and NAAQS

Pollutant	Averaging Period	Maximum Modeled Conc. ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	PSD Class II Increment ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
SO_2	Annual	7.4	10	17.4	20	80
	24-Hour	29.6	47	76.6	91	365
	3-Hour	66.5	152	218.5	512	1,300
PM10	Annual	0.7	17	17.7	17	50

Pollutant	**Averaging Period**	**Maximum Modeled Conc. (μg/m^3)**	**Background (μg/m^3)**	**Total Impact (μg/m^3)**	PSD Class II Increment **(μg/m^3)**	**NAAQS (μg/m^3)**
	24-hour	2.8	37	39.8	30	150
NO_2	Annual	3.9	32	37.5	25	100
CO	8-Hour	48.9	2,300	2,348.9	NA	10,000
	1-hour	69.8	2,300	2,369.8	NA	40,000

Note:
The NO_2 impact reflects a 75% NOx to NO_2 conversion.

D. Class I Area Analysis

Under the Prevention of Significant Deterioration provisions of the Clean Air Act, certain national parks and wilderness areas have been given special protection against adverse air quality impacts. To assess these impacts, DES, in conjunction with the National Forest Service (NFS), has developed a procedure that applies to all applicants for PSD permits. This procedure looks at the source's impacts on Class I area increment, visibility, sulfur deposition, nitrogen deposition, acid neutralizing capacity, and ozone formation, using criteria established by the NFS. The modeling requirements follow recommendations made in the *Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 1 Report: Interim Recommendation for Modeling Long Range Transport and Impacts on Regional Visibility*. The proposed NWPP Boiler at Schiller Station is located approximately 117 kilometers south-southeast of the Presidential Range-Dry River and Great Gulf Wilderness Areas, both of which are designated Class I areas. Table 11 shows the maximum allowable increases in pollutant concentration over the baseline concentration (i.e. increments) as well as the SILs for Class I areas.

Table 11
Increments and Significant Impact Levels for Class I Areas

Pollutant	**Avg. Period**	**Increment**	**Significant Impact Level (μg/m^3)**
SO_2	Annual	2	0.08
	24-Hour	5	0.2

Pollutant	Avg. Period	Increment	Significant Impact Level (μg/m^3)
	3-Hour	25	1.0
PM10	Annual	4	0.16
	24-Hour	8	0.32
NO_2	Annual	2.5	0.1

The incremental impacts of the proposed NWPP Boiler were addressed by modeling the net change in emissions between the proposed boiler and existing Unit #5, which is being replaced, at baseline conditions. Emissions from the proposed boiler will be over twenty times lower than those from existing Unit #5 at baseline; therefore, there will be no short-term incremental impacts associated with the proposed boiler – note that all of the emissions from the proposed boiler were still conservatively evaluated against the Class II increments (see Section C. above). For the annual averaging period, all incremental impacts associated with the proposed boiler were zero, except for PM10. The maximum predicted annual incremental impact for PM10 was 0.0126 μg/m^3, which is well below the corresponding Class I increment and SIL of 4 μg/m^3 and 0.16 μg/m^3, respectively. These results indicate that the proposed NWPP Boiler will not have an adverse effect on Class I air quality related values (AQRV), including impacts on visibility (a discussion of impacts on local visibility follows later in Section F.1).

E. Interactive-Source Criteria Pollutant Impact Analysis

In accordance with DES guidance and policy, an interactive modeling analysis must be performed and include existing, nearby major sources for all pollutants and averaging periods which have been shown to be significant. The results of this analysis are compared to NAAQS, once ambient background is considered, as well as Class II increment levels, which apply to all new and modified permitted sources. Based on the applicant's significant impact area analysis, the following sources were included in the interactive modeling.

- Georgia Pacific Gypsum – Newington
- Lonza Biologics – Portsmouth
- New Hampshire Air National Guard – Newington
- Newington Energy – Newington
- Phillips Exeter Academy - Exeter
- Portsmouth Hospital – Portsmouth

- Portsmouth Naval Shipyard – Kittery, ME
- Public Service of New Hampshire Newington Station - Newington
- Public Service of New Hampshire Schiller Station - Portsmouth
- SEA-3 - Newington
- University of New Hampshire - Durham

These sources were modeled in conjunction with the proposed NWPP Boiler at their permitted SO_2, NOx, and PM10 emission rates. As in the single-source analysis, the same 5-year meteorological data set was used for the interactive AERMOD modeling.

The maximum predicted interactive-source impacts for those pollutants and averaging periods for which the proposed NWPP Boiler is significant are shown below in Table 12 (PM10 is also included in this table, even though it was insignificant for the proposed boiler alone). This table reflects the total predicted air quality impacts in the area, assuming the NWPP Boiler is operating under worst-case conditions. All impacts are predicted to be below the allowable state and federal limits and show that the proposed source does not cause or contribute to any air quality violations.

Table 12
Maximum Predicted Interactive-Source Impacts
for the Proposed NWPP Boiler

Pollutant	Avg. Period	Maximum Predicted Impact (μg/m^3)	Background Conc. (μg/m^3)	Total Impact (μg/m^3)	AAQS (μg/m^3)	Pass/Fail
SO_2	3-hr	647.5	152	799.5	1,300	Pass
	24-hr	232.3	47	279.3	365	Pass
	Annual	40.4	10	50.4	80	Pass
PM	24-hr	112.9	37	149.9	150	Pass
	Annual	22.9	17	39.9	50	Pass
NO_2	Annual	64.7	32	96.7	100	Pass

Notes:
1) Annual results represent maximum impacts; other averaging periods reflect high 2nd high impacts.
2) These results include the proposed NWPP Boiler along with all of the other sources listed above.
3) The NO_2 impact reflects a 75% NOx to NO_2 conversion and an annual capacity limit of 85% for the Schiller combustion turbine.

As described earlier in Section B., the background air quality data shown in Table 12 was taken from Portsmouth for 2000-2002. The Portsmouth monitoring site was determined to be representative of the air quality in the project area.

F. Additional PSD Impact Analyses

1. Local Visibility Impairment

Local visibility is not expected to degrade as a result of replacing the existing Unit #5 Boiler with the proposed NWPP Boiler; in fact, visibility should only improve because of this project. Particulate matter emissions from the NWPP Boiler are expected to decrease 81.7 tons per year relative to Unit #5. Further, the NWPP Boiler will be subject to a more stringent visible emissions standard than was required on Unit #5. Unit #5 currently has a visible emission limit of 40% opacity (six-minute average). The NWPP Boiler will be subject to a 20% opacity limit. Based on this more stringent limit, visibility impairment from particulate matter emissions should improve. Potential increased particulate matter emissions from wood handling operations and their effect on visibility will be minimized with the use of best management practices (BMPs).

In addition, SO_2 and NOx can oxidize to form sulfate and nitrate particulate and can affect visibility downwind of the project area. However, both SO_2 and NOx emissions will be reduced significantly by replacing the existing Unit #5 with the proposed NWPP Boiler, therefore visibility is expected to improve overall as a result of this project.

2. Impacts Due to Growth and Construction

If approved, construction of the NWPP Boiler is expected to take approximately 25 months from the time the Notice to Proceed is given to the boiler vendor. There are no significant impacts expected from the construction phase of this project due to use of BMPs to control fugitive dust emissions. Further, the construction phase will be temporary and short-lived. Construction activities are expected to require a labor force of approximately 175 at any given time, with as many as 250 during peak construction activity. It is anticipated that a portion of the labor force will come from surrounding communities, which would result in minimal impacts on residential growth to support the construction phase of this project.

Mobile source (automobile and truck) emissions are expected to increase during the construction phase of the project. This expected increase is due to the labor force and construction vehicles traveling to and from the site. As stated earlier, these activities are expected to be temporary and short-lived.

If the NWPP Boiler is constructed, PSNH expects to add three full-time employees to the existing Schiller Station staff, therefore residential growth from this project is not expected to be significant.

The NWPP Boiler will have the capability of combusting wood or coal. Since the NWPP Boiler is replacing an existing coal fired boiler (Unit #5), emissions related to coal handling operations are not expected to increase above current levels. However, mobile source emissions are expected to increase, as approximately 70 trucks per day will deliver wood fuel to Schiller Station. PSNH has conducted a traffic study and a mobile source modeling analysis (using EPA's Mobile 6.2 and Caline4 mobile source modeling programs) to assess the potential impact that this activity might have on local air quality. The study concluded that the increased truck traffic will not have a significant impact on air quality. DES reviewed and concurs with the results of this study.

The facility will generate electricity which will be sold throughout eastern New England via transmission through the regional grid, therefore this project is not expected to attract new industry to any specific area. However, any new facility wishing to locate nearby and which emits air pollutants is subject to DES' *Rules Governing the Control of Air Pollution* and, depending on which sections of the Rules are applicable, may need to be modeled to demonstrate compliance with the appropriate standards. This modeling may include PSNH Schiller Station and other nearby sources, again depending on the applicable regulations, so that any future growth will be accounted for.

3. Soils and Vegetation

A quantitative analysis was performed to evaluate the effects of the proposed NWPP Boiler on soils and sensitive vegetation, using criteria established by EPA as contained in *A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils and Animals*. As stated in the EPA guidance document, NAAQS are considered protective against vegetative damage, except possibly for the 3-hour and annual SO_2 standards. Since the NAAQS, and the lower Class II increment levels, are not exceeded by the proposed boiler, there are not expected to be any adverse effects on vegetation due to the boiler's operation. This is also the case for the 3-hour and annual SO_2 screening criteria since the modeled single-source impacts are seen to be well below the screening levels.

G. Toxic Air Pollutant Evaluation

Chapter Env-A 1400 of the Rules requires an evaluation of the potential impacts of toxic air pollutants. For this facility, it was determined that air toxics emissions are possible due to ammonia slip from the SNCR system on the proposed NWPP Boiler stack. Ammonia emissions from the proposed NWPP Boiler were modeled along with the ammonia emissions from existing Units #4 and 6. The proposed NWPP Boiler was modeled at an ammonia emission rate of 4.42 lb/hr, which is based on an assumed slip rate of 10 ppm that may result from ammonia which does not completely react with NOx in the non-catalytic reduction process. The maximum predicted impacts due to ammonia slip are shown below in Table 13 and were compared against New Hampshire Ambient Air Limits (AALs) for ammonia for both the 24-hour and annual averaging periods. As can be seen in the table, maximum predicted ammonia impacts are well below the corresponding AALs. Emissions of ammonia nitrate and ammonia sulfate are possible as by-products of this process, but these compounds are not regulated by DES under Chapter Env-A 1400.

Table 13
Maximum Predicted Ammonia Impacts for PSNH Schiller

Max. Predicted 24-hr Impact ($\mu g/m^3$)	24-hr AAL ($\mu g/m^3$)	Max. Predicted Annual Impact ($\mu g/m^3$)	Annual AAL ($\mu g/m^3$)	Pass/Fail
0.991	100	0.098	100	Pass

Note: Ammonia results represent high 1st high impacts.

IX. <u>Conclusion</u>

It is the preliminary determination of DES that a PSD Permit be granted to PSNH. This recommendation is based upon the review of the application submitted by PSNH and is supported by the findings outlined in this Preliminary Determination. Attached to this Preliminary Determination is a Draft Temporary Permit outlining proposed permit conditions. Public notice of this Preliminary Determination will be given in accordance with the New Hampshire Code of Administrative Rules, Env-A 622.07, 40 CFR 52.21(q), and 40 CFR 124.